## SEQUENCE LISTING

<110> Wyeth Holdings Corporation <120> RECOMBINANT EXPRESSION OF STREPTOCOCCUS PYOGENES CYSTEINE PROTEASE AND IMMUNOGENIC COMPOSITIONS THEREOF <130> AM100904 <160> 15 <170> PatentIn version 3.2 <210> 1 <211> 1197 <212> DNA <213> Streptococcus pyogenes <400> 1 atgaataaaa agaaattagg tgtcagatta ttaagtcttt tagcattagg tggatttgtt 60 cttgctaacc cagtatttgc cgatcaaaac tttgctcgta acgaaaaaga agcaaaagat 120 agegetatea catttateca aaaateagea getateaaag caggtgeaeg aagegeagaa 180 gatattaagc ttgacaaagt taacttaggt ggagaacttt ctggctctaa tatgtatgtt 240 tacaatattt ctactggagg atttgttatc gtttcaggag ataaacgttc tccagaaatt 300 ctaggatact ctaccagcgg atcatttgac gctaacggta aagaaaacat tgcttccttc 360 atggaaagtt atgtcgaaca aatcaaagaa aacaaaaaat tagacactac ttatgctggt 420 accgctgaga ttaaacaacc agttgttaaa tctctccttg attcaaaagg cattcattac 480 aatcaaggta accettacaa cetattgaca eetgttattg aaaaagtaaa accaggtgaa 540 caatcttttg taggtcaaca tgcagctaca ggatgtgttg ctactgcaac tgctcaaatt 600 atgaaatatc ataattaccc taacaaaggg ttgaaagact acacttacac actaagctca 660 aataacccat atttcaacca tcctaagaac ttgtttgcag ctatctctac tagacaatac 720 aactggaaca acatcttacc tacttatagc ggaagagaat ctaacgttca aaaaatggcg 780 atttcagaat tgatggctga tgttggtatt tcagtagaca tggattatgg tccatctagt 840 ggttctgcag gtagctctcg tgttcaaaga gccttgaaag aaaactttgg ctacaaccaa 900 tctgttcacc aaatcaaccg tggcgacttt agcaaacaag attgggaagc acaaattgac 960 aaagaattat ctcaaaacca accagtatac taccaaggtg tcggtaaagt aggcggacat 1020 gcctttgtta tcgatggtgc tgacggacgt aacttctacc atgttaactg gggttggggt 1080 ggagtetetg aeggettett eegtettgae geactaaace etteagetet tggtaetggt 1140 ggcggcgcag gcggcttcaa cggttaccaa agtgctgttg taggcatcaa accttag 1197

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Arg Asn Glu Lys Glu Ala Lys Asp Ser Ala Ile Thr Phe Ile Gln Lys  $35 \hspace{1cm} 40 \hspace{1cm} 45$ 

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Asp Lys Val Asn Leu Gly Gly Glu Leu Ser Gly Ser Asn Met Tyr Val 65 70 75 80

Tyr Asn Ile Ser Thr Gly Gly Phe Val Ile Val Ser Gly Asp Lys Arg 85 90 95

Ser Pro Glu Ile Leu Gly Tyr Ser Thr Ser Gly Ser Phe Asp Ala Asn 100 105 110

Gly Lys Glu Asn Ile Ala Ser Phe Met Glu Ser Tyr Val Glu Gln Ile 115 120 125

Lys Glu Asn Lys Lys Leu Asp Thr Thr Tyr Ala Gly Thr Ala Glu Ile 130 135 140

Lys Gln Pro Val Val Lys Ser Leu Leu Asp Ser Lys Gly Ile His Tyr 145 150 155 160

Asn Gln Gly Asn Pro Tyr Asn Leu Leu Thr Pro Val Ile Glu Lys Val 165 170 175

Lys Pro Gly Glu Gln Ser Phe Val Gly Gln His Ala Ala Thr Gly Cys 180 185 190

Val Ala Thr Ala Gln Ile Met Lys Tyr His Asn Tyr Pro Asn
Page 2

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Phe Asn His Pro Lys Asn Leu Phe Ala Ala Ile Ser Thr Arg Gln Tyr

Asn Trp Asn Asn Ile Leu Pro Thr Tyr Ser Gly Arg Glu Ser Asn Val 245

Gln Lys Met Ala Ile Ser Glu Leu Met Ala Asp Val Gly Ile Ser Val 265 270

Asp Met Asp Tyr Gly Pro Ser Ser Gly Ser Ala Gly Ser Ser Arg Val

Gln Arg Ala Leu Lys Glu Asn Phe Gly Tyr Asn Gln Ser Val His Gln

Ile Asn Arg Gly Asp Phe Ser Lys Gln Asp Trp Glu Ala Gln Ile Asp 305

Lys Glu Leu Ser Gln Asn Gln Pro Val Tyr Tyr Gln Gly Val Gly Lys 330

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Tyr His Val Asn Trp Gly Trp Gly Gly Val Ser Asp Gly Phe Phe Arg 365

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